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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,088	07/08/2003	William Yeoh	A1667-US-NP	8691
76113 7590 07/31/2009 PILLSBURY WINTHROP SHAW PITTMAN, LLP XEROX CORPORATION P.O. BOX 10500 MCLEAN, VA 22102				
EXAMINER				
RASHID, DAVID				
ART UNIT		PAPER NUMBER		
2624				
MAIL DATE		DELIVERY MODE		
07/31/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/615,088

Applicant(s)

YEOH ET AL.

Examiner

DAVID P. RASHID

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-33 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-33 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

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Prior Art

U.S. Patent No. 6,356,672 (issued Mar. 12, 2002, hereinafter ‘Feng’)	5
U.S. Pub. No. 2002/0126299 (published Sep. 12, 2002, hereinafter ‘Buchar’)	5

Amendments & Claim Status

[1] This office action is responsive to Response to Non-Final Office Action (hereinafter “Amendment”) received on May 18, 2009. Claims 24-33 and 37 remain pending; claims 34-36 withdrawn; claim 37 new.

Response to Arguments

Remarks Moot regarding Rejections Under 35 U.S.C. § 103

[2] Amendment at 9-13 regarding 35 U.S.C. § 103(a) rejections with respect to claims 24-33 have been respectfully and fully considered, , but are considered moot in view of the new grounds of rejection of Buchar in view of Feng.

Further, even assuming *arguendo* that it was proper to combine Buchar and Lubin (which Applicant does not concede), Applicant submits that the cited portions of Lubin do not overcome the deficiencies of Buchar.

For example, the cited portions of Lubin make no mention or suggestion “a registration parameter detection circuit that is configured to determine a registration parameter based on chrominance values, much less determining registration parameters based on the average chrominance value and the chrominance deviation of the registration channel.”

Amendment at 11 (arguing that neither Buchar nor Lubin teach using chrominance values for detecting registration parameters).

Feng teaches using chrominance values for a method of color registration. Though Feng may or may not specifically teach using chrominance values for detecting registration parameters,

prior art that is in a field of endeavor other than that of the applicant (as noted by the Court in KSR, “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one”, 550 U.S. at ___, 82 USPQ2d at 1396 (emphasis added)), or solves a problem which is different from that which the applicant was trying to solve, may also be considered for the purposes of 35 U.S.C. 103. (The Court in KSR stated that “[t]he first error...in this case was...holding that courts and patent examiners should look only to the problem the patentee was trying to solve. The Court of Appeals failed to recognize that the problem motivating the patentee may be only one of many addressed by the patent’s subject matter...The second error [was]...that a person of ordinary skill attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem.” 550 U.S. at ___, 82 USPQ2d at 1397. Federal Circuit case law prior to the Supreme Court’s decision in KSR is generally in accord with these statements by the KSR Court. See e.g., In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1902 (Fed. Cir. 1990) (en banc) (“[I]t is not necessary in order to establish a prima facie case of obviousness that both a structural similarity between a claimed and prior art compound (or a key component of a composition) be shown and that there be a suggestion in or expectation from the prior art that the claimed compound or composition will have the same or a similar utility as one newly discovered by applicant”); In re Linner, 458 F.2d 1013, 1018, 173 USPQ 560, 562 (CCPA 1972) (“The fact that [applicant] uses sugar for a different purpose does not alter the conclusion that its use in a prior art composition would be prima facie obvious from the purpose disclosed in the references.”)).

M.P.E.P. § 2141.

Examiners are not restricted to look only to the problem Applicant is trying to solve (i.e., using chrominance values for detecting registration parameters). Feng and Applicant’s invention are both classified under Class 382 (Image Analysis). Though Feng may or may not serve a different purpose, one of ordinary skill in the art would not be restricted to structural similarity between the claimed and a prior art structure (i.e., the same field of endeavor – image analysis and color processing of both the prior art and claimed invention, and would be enough for one of ordinary skill in the art to find it obvious to replace gray level values with chrominance values for the registration method of Buchar). See Id.

... Yet nowhere do the cited portions of Lubin make any mention or suggestion of a registration parameter detection circuit that determines a registration parameter based on chrominance values, let alone determining registration parameters based on the average chrominance value and the chrominance deviation of the registration channel. Indeed, specifying the vertical representation of RGB images on a display device is unrelated to determining a registration parameter.

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In addition, the Office Action asserts that 'YCbCr colorspace including chrominance has been known to be advantageous {as opposed to RGB or gray scale} for improved compression." [Office Action, pg. 3]. However, as previously pointed out by Applicant, the claimed invention does not concern, nor-is it related to image data compression.

As such, Applicant submits that the Office Action has failed to demonstrate that the claimed invention is merely a "predictable use of prior art elements *according to their established functions.*" KSR, 82 USPO2d at 1396 (emphasis).

Amendment at 12-13 (arguing although Lubin teaches using chrominance values for an entirely different purpose than Applicant claimed invention requires).

However as argued above, examiners are not restricted to look only to the problem Applicant is trying to solve (i.e., Applicant's purpose).

In re Lintner, 458 F.2d 1013, 1018, 173 USPQ 560, 562 (CCPA 1972) ("The fact that [applicant] uses sugar for a different purpose does not alter the conclusion that its use in a prior art composition would be prima facie obvious from the purpose disclosed in the references.")).

M.P.E.P. § 2141.

The scope and content of Buchar is equivalent to Applicant's claimed invention other the fact Applicant's invention uses chrominance values and Buchar uses gray level values. See § 2141 (determining the scope and content of the prior art Buchar and ascertaining the differences between the claimed invention and prior art Buchar). Feng discloses a method for color registration (fig. 4) that teaches wherein image data (e.g., fig. 1) comprises chrominance values (fig. 4, items 82, 84; fig. 2, item 28). It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values as taught by Feng "to capture luminance and chrominance separately and independently, so that the captured image is free from color fringing and blurring associated with mis -registration." Feng at 4:10-22. See M.P.E.P. § 2141(II)(C) and § 2143(G)(1) (showing a finding that there is some motivation in Feng to modify Buchar).

Feng "relates to improvements in document scanning for photocopiers, scanners, and other image reproducing systems, and specifically to a method of refining color registration within the final image." Feng at 1:6-10. See M.P.E.P. § 2143(G)(2) (showing that there is a reasonable expectation of success).

In addition under the same rationale (§ 2143(G)), it also would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values because of advantages of

using a YCbCr colorspace (that creates chrominance values) over RGB colorspace (that creates gray values), including the fact YCbCr has less correlation redundancy and because the chrominance components can then be subsampled by a factor of 2 or 4 to further compress the image.

Claim Rejections - 35 U.S.C. § 112

[3] In response to Amendment at 8-9, the previous § 112 rejections are withdrawn.

Claim Rejections - 35 U.S.C. § 101

[4] In response to Amendment at 7-8, the previous § 101 rejections are withdrawn.

Claim Rejections - 35 U.S.C. § 103

[5] The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Buchar in view of Feng

[6] **Claims 24-33 and 37** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Buchar in view of Feng.

Regarding **claim 24**, while Buchar discloses in a document handler and imaging system ("improved document handler and imaging system" at ¶0012), wherein different document sheets are sequentially moved past an imaging station by a document feeding system to be illuminated by a document illumination source and imaged by a document imager in the document imaging station ("wherein different document sheets. . .document imaging station" at ¶0012),

wherein the document imaging station includes a document backing surface having a selected color and a scanning sensor having at least two color sensitive channels and wherein at least one edge of a document sheet is detected in said document imaging station by said

document imager ("wherein the document imaging station. . .by said document imager" at ¶0012), comprising:

- a registration parameter detection circuit ("registration parameter detection circuit; the registration parameter detection circuit receiving a set of gray level values for the backing surface" at ¶0012), configured to:

- receive image data including gray level values in multiple channels for selected pixel locations along a scanline ("the two sets of gray level values including a first set of gray level values comprising a gray level value for selected pixel locations along a scanline" at para.0013);

- automatically determine an average gray level value for each of the multiple channels ("automatically determining an average gray level of the backing surface for each of the at least two sensitive channels" at ¶0012);

- select a registration channel based on the average gray level value;

- determine a gray level deviation for the registration channel ("the registration parameter detection circuit automatically selecting a registration channel based on the average gray level for each of the at least two sensitive channels and determining a gray level deviation for the registration channel" at ¶0012); and

- automatically determine a registration parameter based on the average gray level value and the gray level deviation of the registration channel ("the registration parameter detection circuit automatically determining registration parameters based on the average gray level and the gray level deviation of the registration channel" at ¶0012), Buchar does not disclose the image registration parameter detection circuit including chrominance values. See M.P.E.P. § 2141(II)(A) (determining the scope and content of Buchar) and § 2141(II)(B), 2111 (ascertaining the differences between the claim 1 and Buchar).

Feng discloses a method for color registration (fig. 4) that teaches wherein image data (e.g., fig. 1) comprises chrominance values (fig. 4, items 82, 84; fig. 2, item 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values from the color registration method as taught by Feng "to capture luminance and chrominance separately and independently, so that the captured image is free from color fringing and blurring associated with mis-registration. . ." Feng at 4:10-22. See M.P.E.P. §

2141(II)(C) and § 2143(G)(1) (showing a finding that there is some motivation in Feng to modify Buchar).

Feng “relates to improvements in document scanning for photocopiers, scanners, and other image reproducing systems, and specifically to a method of refining color registration within the final image.” Feng at 1:6-10. See M.P.E.P. § 2143(G)(2) (showing that there is a reasonable expectation of success).

In addition under the same rationale (§ 2143(G)), it also would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values because of advantages of using a YCbCr colorspace (that creates chrominance values) over RGB colorspace (that creates gray values), including the fact YCbCr has less correlation redundancy and because the chrominance components can then be subsampled by a factor of 2 or 4 to further compress the image.

Regarding **claim 25**, Buchar in view of Feng discloses wherein the registration parameter detection circuit determines the chrominance level deviation for the registration channel as the difference between the maximum chrominance level value within the set of chrominance level value corresponding to the registration channel and the minimum chrominance level value within the set of chrominance level values corresponding to the registration channel (“gray level deviation is the difference between the maximum and minimum gray level received in a given for the scan” at ¶0035).

Regarding **claim 26**, Buchar in view of Feng discloses a document handler and imaging system of claim 24, wherein the registration parameter detection circuit determines a registration parameter for a black average register (BAR) as a function of the average chrominance level of the registration channel (“BAR” at ¶¶0024, 0037, 0039; Claim 4), a step change register (SCR) as a function of the chrominance level deviation of the registration channel (“SCR” at ¶¶0024, 0037, 0039; Claim 4), and white average register (WAR) as a function of as both the average chrominance level and the chrominance level deviation of the registration channel (“WAR” at ¶¶0024, 0037, 0039; Claim 4)

Regarding **claim 27**, Buchar in view of Feng discloses document handler and imaging system of claim 26, wherein the registration parameter detection circuit determines the registration parameter for the black average register (BAR) according to:

$$\text{BAR}_c = \begin{cases} \text{Cb}_{\text{avg}} & \text{if } \text{Cb}_{\text{avg}} \geq t_1 \\ t_1 & \text{if } \text{Cb}_{\text{avg}} < t_1 \end{cases}$$

(equation 3 at ¶0037) the registration parameter for the a step change register (SCR) according to

$$\text{SCR}_c = \begin{cases} \Delta_{\text{cb}} & \text{if } \Delta_{\text{cb}} \geq t_2 \\ t_2 & \text{if } \Delta_{\text{cb}} < t_2 \end{cases}$$

(equation 4 at ¶0037) and the registration parameter for white average register (WAR) according to

$$\text{WAR}_c = \begin{cases} \text{Cb}_{\text{avg}} + \Delta_{\text{Cb}} & \text{if } \text{Cb}_{\text{avg}} + \Delta_{\text{Cb}} \geq t_3 \\ t_3 & \text{if } \text{Cb}_{\text{avg}} + \Delta_{\text{Cb}} < t_3 \end{cases}$$

(equation 5 at ¶0037) wherein t_1 is the minimum backing chrominance threshold level, t_2 is the minimum step change level and t_3 is the minimum document chrominance threshold level required for detection processing (¶0038).

Regarding **claim 28**, while Buchar discloses in a document handler and imaging system configured to sequentially move different document sheets past an imaging station by a document feeding system to be illuminated by a document illumination source and imaged by a document imager, a method of automatically detecting registration parameters for a selected backing surface ("document handler and imaging system. . .backing surface" at ¶0012), comprising:

obtaining image data ("image data" at ¶0020) via the document imager ("document imager" at ¶0012) comprising a representative sample of the backing surface ("backing surface" at ¶¶0013-0014), the backing surface image data including gray level values ("gray level

values” at ¶0013) in multiple channels (“at least two color sensitive channels” at ¶0012) for selected pixel locations along a scanline (¶0013);

determining average gray level values for each of the multiple channels (“automatically determining an average gray level...” at ¶0012);

selecting a registration channel (fig. 4, item 110) based on the average gray level values (¶0034);

determining a gray level deviation for the registration channel (“determining a gray level deviation for the registration channel” at ¶0012); and

determining a registration parameter (fig. 4, item 114; “determining registration parameters based on the average gray level” at ¶0012) based on the average gray level value of the registration channel, Buchar does not disclose the image registration parameter detection circuit including chrominance values. See M.P.E.P. § 2141(II)(A) (determining the scope and content of Buchar) and § 2141(II)(B), 2111 (ascertaining the differences between the claim 1 and Buchar).

Feng discloses a method for color registration (fig. 4) that teaches wherein image data (e.g., fig. 1) comprises chrominance values (fig. 4, items 82, 84; fig. 2, item 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values from the color registration method as taught by Feng “to capture luminance and chrominance separately and independently, so that the captured image is free from color fringing and blurring associated with mis-registration. . .” Feng at 4:10-22. See M.P.E.P. § 2141(II)(C) and § 2143(G)(1) (showing a finding that there is some motivation in Feng to modify Buchar).

Feng “relates to improvements in document scanning for photocopiers, scanners, and other image reproducing systems, and specifically to a method of refining color registration within the final image.” Feng at 1:6-10. See M.P.E.P. § 2143(G)(2) (showing that there is a reasonable expectation of success)

Regarding **claim 29**, Buchar in view of Feng discloses further comprising providing a backing surface having a color being one of yellow, greenish-yellow, green and black (¶0036; claim 6)

Regarding **claim 30**, Buchar in view of Feng discloses wherein the backing surface comprises a ski, the ski being adapted to be removably attached to a document handler (¶0027; claim 7).

Regarding **claim 31**, Buchar in view of Feng discloses wherein selecting said registration channel further comprises;

determining a chrominance level deviation for the registration channel (step (d) at ¶0013); and

determining registration parameters based on the average chrominance level value and the chrominance level deviation of the registration channel (step (e) at ¶0013).

Regarding **claim 32**, claim 25 recites identical features as in claim 32. Thus, references/arguments equivalent to those presented above for claim 25 are equally applicable to claim 32.

Regarding **claim 33**, claim 26 recites identical features as in claim 33. Thus, references/arguments equivalent to those presented above for claim 26 are equally applicable to claim 33.

Regarding **claim 37**, Buchar in view of Feng discloses wherein the determining and selecting steps are performed using a processor (fig. 1; “digital scanning system” at ¶0022).

Conclusion

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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